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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* PATRICK FLYNN and MICHAEL SPRAGUE

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Appeal 2008-005615  
Application 10/637,608  
Technology Center 1700

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Decided: October 20, 2009

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Before ROMULO H. DELMENDO, JEFFREY T. SMITH, and  
KAREN M. HASTINGS, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from a final rejection of claims 2-4, 7-11, 47-53, and 59 (Appeal Brief resubmitted on December 6, 2007, hereinafter “App. Br.”; Examiner’s Answer mailed on April 8, 2008, hereinafter “Ans.” 3; Final Office Action mailed on December 20, 2005). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

### STATEMENT OF THE CASE

Appellants’ claimed invention relates to a hydrogen composition comprising hydrogen and a specified odorant (selenium compound) (Specification, hereinafter “Spec.,” ¶¶ [03], [05] and appealed claim 2). According to Appellants, the odorant alleviates safety concerns in the event of hydrogen leakage (Spec. ¶ [03]).

Claim 2 on appeal reads as follows:

2. A hydrogen composition comprising: hydrogen; and an odorant, said odorant having a vapor pressure greater than 0.5 psi and having a smell detectable at less than 1 ppm by a human nose, wherein said odorant is a selenium compound.

The Examiner relied upon the following as evidence of unpatentability:

Prentice	1,643,954	Oct. 4, 1927
Rasmussen	4,496,639	Jan. 29, 1985
Baugh	4,656,038	Apr. 7, 1987
Borschel	5,221,545	June 22, 1993
Schrauzer	2002/0197304 A1	Dec. 26, 2002

Ecalfe (FR '622)<sup>1</sup>                      FR 2 645 622 A1                      Oct. 12, 1990

The Examiner rejected the claims under 35 U.S.C. § 103(a) as follows  
(Ans. 5-6):

- I.        Claims 2-4, 7-11, 47-53, and 59 as unpatentable over FR '622 in view of Prentice;
- II.       Claims 2, 7-11, and 59 as unpatentable over FR '622 in view of either Borschel or Rasmussen;
- III.      Claims 2, 3, 7-11, 47-49, 52, and 59 as unpatentable over FR '622 in view of Schrauzer; and
- IV.      Claims 2, 4, 7-11, 50, 51, 53, and 59 as unpatentable over FR '622 in view of Baugh.

#### ISSUES

The Examiner found that FR '622 describes an industrial hydrogen composition comprising hydrogen and an odorous compound such as a mercaptan, a thiophane, or a product known as "TBM," which is added for the purpose of leak detection (Ans. 5, 7-8). The Examiner further found that each of the other prior art references (Prentice, Borschel, Rasmussen, Schrauzer, and Baugh) teaches that various selenium compounds are known to exhibit odor (*id.* at 5-6). Based on these findings, the Examiner concluded that one of ordinary skill in the art would have found it obvious to use a selenium compound (in lieu of, e.g., mercaptan) as the odorous

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<sup>1</sup> We refer to the EAST Version of the Abstract dated October 14, 2004 and the English language translation of April 2008, both of which were entered into the record by the Examiner.

compound in FR '622 with the reasonable expectation that these compounds would be interchangeable as suitable odorous compounds (Ans. 5-6).

Appellants contend that the Examiner's rejections are in error because FR '622 "only describes using sulfur compounds as odorants" and not any odorous compound (App. Br. 7). Appellants further assert that the Examiner erred because the rejections combine references that are dissimilar from each other (*id.* at 8, 15, 22, 28, and 33-34).

Thus, the dispositive issues are:

Have Appellants shown reversible error in the Examiner's factual finding that the disclosure of FR '622 is not limited to the enumerated sulfur compounds?

Have Appellants shown reversible error in the Examiner's obviousness rejections because they are each based on a combination of dissimilar references?

#### FINDINGS OF FACT (FF)

1. FR '622 describes the use of an odorous gaseous product such as a mercaptan, a thiophane, or a product known as "TBM" for the purpose of detecting industrial hydrogen leaks (Abstract; Translation at 2; Claim 1).
2. Prentice, which relates to compositions for "defensive or offensive projection" (p. 1, ll. 2-3), teaches that various compounds including mercaptans and selenides are odorous (p. 2, ll. 6-10).
3. Rasmussen, which relates to treatments for enhancing the performance of polycrystalline ceramic electrolytes, teaches

that hydrogen selenide, while toxic, exhibits “a strong odor so that any leaks can be easily detected” (col. 1, ll. 48-56; col. 4, ll. 21-24).

4. Baugh, which relates to compositions for repelling animals, teaches that methyl selenide or dimethyl selenide exhibits an offensive odor to various animals including deer, rabbits, mice, dogs, gophers, and prairie dogs (col. 5, ll. 40-50).
5. Borschel teaches that sodium selenite has been used as a component in nutritional products but that its interaction with other components creates hydrogen selenide, which has a repugnant odor (col. 1, ll. 28-44).
6. Schrauzer teaches that selenium is an essential trace element that is the functional component of several important enzymes and even recognized as an anticarcinogen (§ [0001]).
7. Schrauzer states that selenols have an unpleasant odor (§ [0021]).

#### PRINCIPLES OF LAW

On appeal to this Board, Appellants must show reversible error in the Examiner’s rejections. *Cf. In re Kahn*, 441 F.3d 977, 985-986 (Fed. Cir. 2006); *see also* 37 C.F.R. § 41.37(c)(1)(vii).

The Supreme Court of the United States explained “that when a patent claims a structure already known in the prior art that is altered by mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 416 (2007). The Court further stated that “[w]hen a work is

available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.” *Id.* at 417.

## ANALYSIS

In their opening Brief, Appellants have not argued for the separate patentability of any claim. Accordingly, we confine our discussion to claim 2. *See* 37 C.F.R. § 41.37(c)(1)(vii).

Appellants do not contest the Examiner’s factual findings that Prentice, Borschel, Rasmussen, Schrauzer, and Baugh teach that selenium compounds are known to exhibit odor – even odor sufficient to facilitate leak detection (FF 2-5 and 7). Rather, Appellants’ position hinges on the belief that the disclosure of FR ‘622 is limited to certain sulfur compounds (App. Br. 6).

We cannot agree with Appellants. As succinctly stated by the Examiner (Ans. 7-8), the disclosure of FR ‘622 is not limited to mercaptan, thiophane, or “TBM” (FF 1). To the contrary, the phrase “an odorous gaseous product . . . *such as* a mercaptan, a thiophane, or a product known under the name ‘TBM’” in FR ‘622 (Abstract; emphasis added) would have indicated to one of ordinary skill in the art that the reference disclosure is in no way limited to the enumerated compounds but that other suitable odorous compounds may also be used. Hence, we detect no error in the Examiner’s conclusion that a person having ordinary skill in the art would have found it obvious to use a selenium compound (in lieu of, e.g., mercaptan) as the odorous compound in FR ‘622 with the reasonable expectation that these

compounds would be interchangeable as suitable odorous compounds, thus arriving at a composition encompassed by appealed claim 2.

We also find no persuasive merit in Appellants' contention that the Examiner's rejections are in error because the combined references are "dissimilar" (App. Br. 15, 22, 28, and 33-34). As pointed out by the Examiner (Ans. 8), Prentice, Borschel, Rasmussen, Schrauzer, and Baugh are cited to demonstrate that certain selenium compounds are, like the enumerated sulfur compounds disclosed in FR '622, odorous. Merely asserting that these "secondary" references do not disclose the use of these odorous selenium compounds in hydrogen compositions does not demonstrate error in the Examiner's rejections because, "[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one." *KSR*, 550 U.S. at 417.

As a final point, Appellants' arguments concerning the alleged impropriety of the Examiner's election of species/restriction requirements are likewise ineffective to show reversible error as to the rejections because these arguments relate to petitionable subject matter. *See* 37 C.F.R. § 1.144.

For these reasons, we uphold each of the Examiner's rejections.

## CONCLUSION

On this record, Appellants have failed to show reversible error in the Examiner's factual finding that the disclosure of FR '622 is not limited to the enumerated sulfur compounds.



Appellants have also failed to show reversible error in the Examiner's obviousness rejections by merely asserting that the rejections are each based on a combination of dissimilar references.

### DECISION

The Examiner's decision to reject:

- I. Claims 2-4, 7-11, 47-53, and 59 as unpatentable over FR '622 in view of Prentice;
- II. Claims 2, 7-11, and 59 as unpatentable over FR '622 in view of either Borschel or Rasmussen;
- III. Claims 2, 3, 7-11, 47-49, 52, and 59 as unpatentable over FR '622 in view of Schrauzer; and
- IV. Claims 2, 4, 7-11, 50, 51, 53, and 59 as unpatentable over FR '622 in view of Baugh

is AFFIRMED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

bim

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